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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

September 9, 1940

MORE THAN HALF OF MIDDLE WEST
CORN ACREAGE PLANTED TO HYBRIDS

Corn culture has changed a lot since the Indians taught the early colonists how to increase yields by putting fish in the hills. Subsequent agricultural history has recorded the progress that has been made in soil improvement, machinery, and corn breeding--all contributing to increased yields per acre. In recent years, one of the most significant developments has been the spectacular increase in the acreage of hybrid corn throughout the Corn Belt.

From a mere beginning in 1936, hybrid corn acreage in the Corn Belt States had expanded by 1938 to 12 million acres. In 1939, about 21 million acres were grown. And this year 25 million acres, or slightly more than half of the Belt's total plantings of 49,544,000 acres, is hybrid corn. This picture in figures of the rapid increase of hybrid corn acreage in the Middle West, where 56 percent of the Nation's corn acreage is being grown this year, is based on field surveys of the Agricultural Marketing Service. Added significance is given this increase when it is realized that in this 5-year period the total corn acreage in the Corn Belt has declined over 12,000,000 acres.

Though no surveys were made by the Service prior to 1938, available information shows that even the States that now have over 75 percent of their total corn acreage in hybrids had less than 15 percent in hybrids in 1937, and no more than 5 percent in 1936. The remarkable shift from open-pollinated varieties to hybrids appears to have been limited only by the supply of adapted seed.

In 1938, the first year for which survey data are available, the heaviest concentration of hybrid corn acreage was found in northern Illinois and east central Iowa; and even there hybrids made up less than three-fourths of the total. Many sections of this area now have as much as 95 percent of the total corn acreage in hybrids. The concentration of acreage has spread out in all directions from this area until in 1940 hybrids constituted over 80 percent of the total corn acreage in most of Iowa, the southern parts of Minnesota and Wisconsin, the northern half of Illinois and Indiana, and the northwestern part of Ohio.

The 1940 survey of acreage covered 22 States having 69 percent of the Nation's corn acreage this year. About 42 percent of the total corn acreage in these 22 States was planted with hybrid seed.

Most of Iowa's Corn Acreage in Hybrids

Since 1938, the proportion of hybrid corn acreage in Iowa has increased from 40 to 88 percent and now all except the western and southern

sections have over nine-tenths of the total corn acreage planted to hybrids. In Illinois, the proportion has increased from 45 percent in 1938 to 77 percent this year. Over four-fifths of the total corn acreage in northern Illinois is hybrid corn, but the development of adapted strains has been slower in the southern area, shading off to less than one-fifth of the total in the extreme southern end.

Indiana's hybrid corn acreage has increased from 33 percent of the total in 1938 to 66 percent in 1940. The heaviest plantings are found in the central and northern sections with less than half of the total corn acreage in the southern sections planted to hybrids. The proportion in Ohio increased from 25 to 57 percent from 1938 to 1940, with the heaviest concentration of hybrid acreage in the western and north central portions.

Minnesota farmers have increased their acreage of hybrids from 17 percent of the total in 1938 to 54 percent in 1940. Most of the hybrid acreage is in the southern part of the State, the proportion shading off to less than one-tenth in the northern area. Wisconsin, with only 13 percent of the total planted to hybrid corn in 1938, has increased the proportion to more than half of the total corn acreage this year.

Missouri, which had only 2 percent of the total corn acreage planted with hybrid seed in 1938, has increased this proportion to 28 percent in 1940 with most of the hybrid acreage being grown in the northern part of the State. Hybrid corn acreage in Michigan is largely confined to the southern or more important corn section. Hybrids in Michigan increased from 4 percent of the total corn acreage in 1938 to 17 percent in 1940.

Severe droughts in the Plains States have seriously retarded the development of adapted hybrids for that area. From 1938 to 1940 South Dakota's hybrid corn acreage has risen from only 2 to 12 percent of the total; in Nebraska, from 6 to 23 percent; and in Kansas from only 1 to 8 percent. In this area the hybrids are largely concentrated in the eastern portions. With data available for only two years, the survey indicated 1 percent in North Dakota last year, 3 percent this year. Kentucky showed an increase from 4 percent last year to 7 percent this year.

Other States Increase Hybrid Acreage

In 1940, additional States were included in the survey. The figures showed that about 12 percent of the total corn acreage in New York was planted to hybrids, some of them silage hybrids. The indicated percentage of all corn acreage planted with hybrid seed was 20 percent in New Jersey, 13 percent in Pennsylvania, 4 percent in Delaware, 10 percent in Maryland, 3 percent in Virginia, 8 percent in West Virginia, 2 percent in Tennessee, and less than 1 percent in Colorado.

More Corn on Less Acreage

There is little doubt that hybrids outyield open-pollinated varieties. In a survey made in 1939, crop correspondents reporting on both kinds indicated

that hybrids outyielded open-pollinated varieties that year by 10 to 30 percent, depending on the section of the country. In the eastern States, where the acreage of adapted hybrids is still small, the increase in yield per acre in favor of hybrids appears to average about 10 percent. Available information also indicates that hybrids are more drought resistant than open-pollinated varieties and in the western edge of the Corn Belt, where drought is a limiting factor, hybrids appear to have outyielded open-pollinated varieties by as much as 20 to 30 percent. For the Corn Belt as a whole the differential in favor of hybrids appears to range between 10 and 20 percent.

Coincidental with the increasing acreage of corn planted with hybrid seed has been an increased use of fertilizers, the tendency to plant corn on more fertile fields and hybrids on the most fertile fields, and a widespread use of efficient high-speed machinery. The seasons in recent years, too, have been generally favorable. The late falls of 1938 and 1939 were especially favorable to the long-season hybrids. And the seed has been handled and stored in such a way that it is likely to give a better stand. All of these factors make the evaluation of the effect of hybrids on yield per acre more difficult, particularly since hybrids appear to vary widely in yielding power.

But, in general, hybrids do outyield open-pollinated varieties and even if this differential is no more than 10 percent, the net effect has been to contribute many millions of bushels to the Nation's corn crop. With hybrids continuing to be improved in the Corn Belt, and being extended to an ever-increasing area outside of the Belt, the ultimate effect of hybrids as a factor in corn production cannot be fully appraised at the present time.

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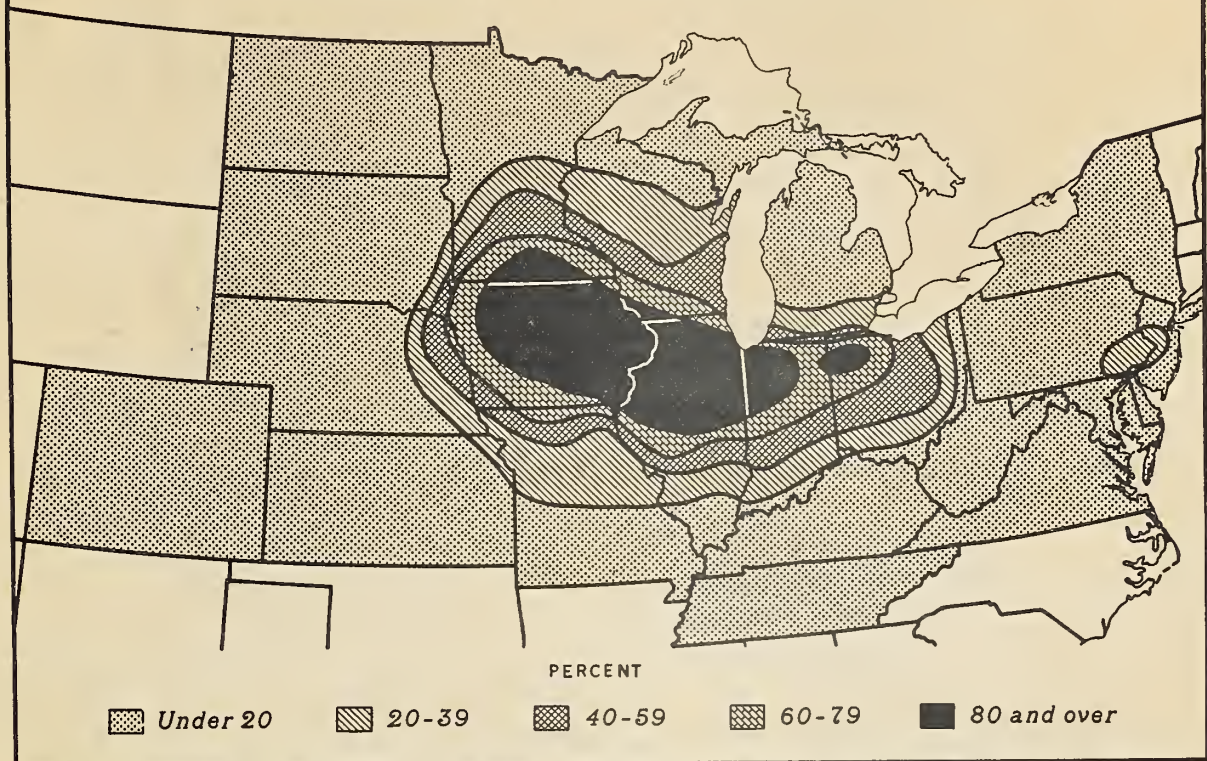
CORN ACREAGE PLANTED WITH HYBRID SEED, 1938-1940

STATE	1938				1939				1940			
	Percent		Thous. acres		Percent		Thous. acres		Percent		Thous. acres	
	PLANTED WITH HYBRID SEED	INDICATED HYBRID CORN ACREAGE	ALL CORN ACREAGE	PLANTED WITH HYBRID SEED	INDICATED HYBRID CORN ACREAGE	ALL CORN ACREAGE	PLANTED WITH HYBRID SEED	INDICATED HYBRID CORN ACREAGE	PLANTED WITH HYBRID SEED	INDICATED HYBRID CORN ACREAGE	ALL CORN ACREAGE	PLANTED WITH HYBRID SEED
CORN BELT:												
Chio	25	892	3,425	42	1,438	3,220	57	1,835				
Ind.	33	1,417	4,144	51	2,113	3,937	66	2,598				
Ill.	45	3,854	8,051	66	5,314	7,487	77	5,765				
Mich.	4	64	1,574	11	173	1,590	17	270				
Wis.	13	306	2,233	37	826	2,255	51	1,150				
Minn.	17	765	4,501	37	1,665	4,321	54	2,333				
Iowa	40	4,167	9,688	74	7,169	8,816	88	7,758				
Mo.	2	87	4,229	13	550	3,933	28	1,101				
N. Dak. 1/	--	--	1,052	1	11	1,073	3	32				
S. Dak.	2	69	3,050	8	244	3,080	12	370				
Nebr.	6	469	7,425	13	965	6,682	23	1,537				
Kans.	1	25	3,316	4	133	3,150	8	252				
Total	22.7	12,115	52,688	39.1	20,601	49,544	50.5	25,001				
OTHER STATES:												
N.Y. 2/	--	--	--	--	--	713	12	86				
N.J. 2/	--	--	--	--	--	189	20	38				
Pa. 2/	--	--	--	--	--	1,368	13	178				
Del. 2/	--	--	--	--	--	141	4	6				
Md. 2/	--	--	--	--	--	511	10	51				
Va. 2/	--	--	--	--	--	1,377	3	41				
W. Va. 2/	--	--	--	--	--	486	8	39				
Ky. 1/	--	--	2,816	4	113	2,816	7	197				
Tenn. 2/	--	--	--	--	--	2,740	2	55				
Colo. 2/	--	--	--	--	--	1,000	0.4	4				
Total	--	--	--	--	--	60,885	42.2	25,696				
22 States	--	--	--	--	--	--	--	--				

1/ First survey made in 1939.

2/ First survey made in 1940.

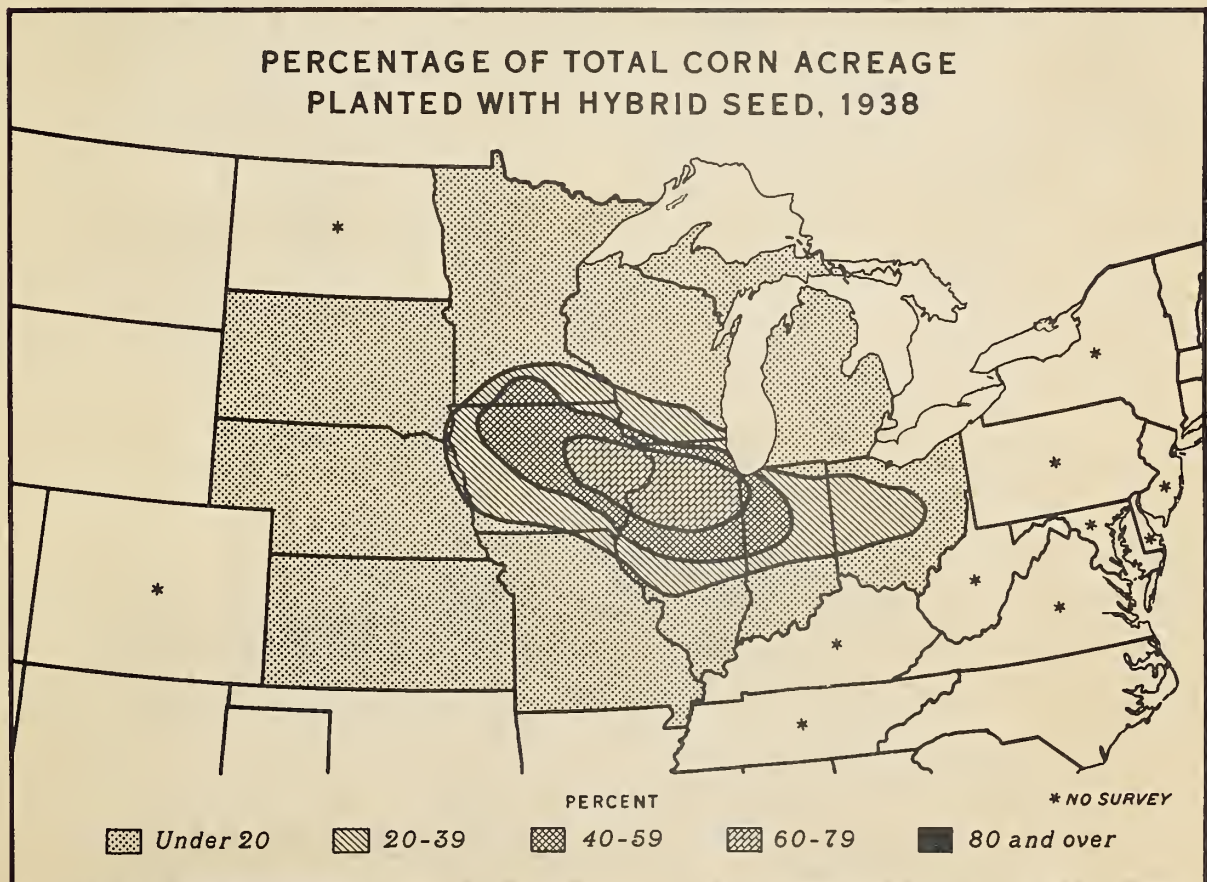
PERCENTAGE OF TOTAL CORN ACREAGE
PLANTED WITH HYBRID SEED, 1940



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PERCENTAGE OF TOTAL CORN ACREAGE
PLANTED WITH HYBRID SEED, 1938



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